

CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1           1. A spatial light modulator array for modulating light to  
2 form an image comprising:

3 a plurality of liquid crystal devices positioned over respective  
4 mirrors on a dielectric layer on a semiconductor substrate,

5 a plurality of electrical circuits formed in said semiconductor  
6 substrate coupled to said liquid crystal devices, respectively, for  
7 placing a voltage across its electrodes, and

8 a reflector/absorber layer positioned and patterned with respect to  
9 said mirrors for shielding said plurality of electrical circuits  
10 from ambient light,

11 said reflector/absorber layer having an edge overlapping an edge of  
12 said mirror to form an overlapping region to decrease ambient light  
13 from passing into said semiconductor substrate.

1           2. The spatial light modulator array of claim 1 wherein said  
2 reflector/absorber layer overlaps said edge of said mirror by at  
3 least 5.4 $\mu$ m.

Sub  
C1

0899663-121897

Sub 22  
G3

Sub  
C22  
3

1  
2  
3  
4

1  
C3

$$\begin{array}{r} 1 \\ 2 \\ \hline 3 \end{array}$$

- 1
- 2

liquid crystal devices and being electrically coupled to respective outputs of said plurality of electrical circuits.

9. The spatial light modulator array of claim 1 wherein said reflector/absorber layer is selected from the group consisting of Al, Cr-Cr<sub>2</sub>O<sub>3</sub>, Ti and TiN and TiN/Cy where.

10. The spatial light modulator array of claim 1 wherein said reflector/absorber layer is electrically conductive and forms a blanket layer over said semiconductor substrate with openings therein for electrical vias to said mirrors.

11. The spatial light modulator array of claim 1 wherein said electrical circuits include complementary metal oxide silicon (CMOS) circuits.

12 The spatial light modulator array of claim 1 wherein each of said mirrors and said reflector/absorber layer forms a capacitor of at least 0.03 pf.

13. The spatial light modulator array of claim 1 wherein said liquid crystal devices are positioned in rows and columns on a pitch in each of two directions of about 17 microns or less.

14. A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectively,

forming one or more layers of interconnections above said plurality of electrical circuits,

forming a first dielectric layer over said electrical circuits and  
said layers of interconnections,

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer,

forming a reflector/absorber layer of conductive material, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned reflector/absorber layer,

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors,

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said reflector/absorber

